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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,679	08/01/2001	Juliana H.J. Brooks	BLP:101 (a) US-CIP	6650

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EXAMINER	
HANLEY, SUSAN MARIE	
ART UNIT	PAPER NUMBER
1651	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/919,679	BROOKS ET AL.	
	Examiner	Art Unit	
	Susan Hanley	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/20/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The amendment and remarks filed 6/18/07 have been entered.

Claims 1-15 are pending.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1-4, 7-9 and 13 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by Tsutsui et al. (US 4,287,036; "Tsutsui").

Applicant provides three groupings of eight "alternative phrases" used by Tsutsui. Applicant asserts that the phrases labeled as "Composition A" all refer generally to the mixture of an alcohol, and a transition metal salt, while those labeled "Composition B" relates to the raw materials of Composition A that have been mixed with the additional ingredients which include a multidentate (e.g., catechol) and a base (e.g., NaOH). Applicant states that the phrases labeled as "Composition C" includes, for example "active state" and the like. Applicant argues that although Tsutsui is difficult to interpret, "it is perfectly clear from Tsutsui that some combination of "Composition A" and "Composition B" (i.e. the "inactive transition metal"), are then exposed to radiation results in "Composition C" (i.e., the "active state")." Applicant asserts that the disclosure of an "inactive catalyst" that becomes an "active catalyst" does not meet the definition of a catalyst, as disclosed in the specification at pages 4-5.

Applicant asserts that they are not trying to change the definition of a catalyst, as alleged in the previous Office action. Applicant asserts that Tsutsui, "based on the language chosen in the Tsutsui specification may be renaming (due to sloppy lexicography) what a catalyst is or is not." Applicant argues that Tsutsui does not expose his chemical reaction system to at least one frequency of a duplicated EM spectral pattern of a physical catalyst in the active state which is in contract to the limitations of instant claims 1 and 13, wherein the physical catalyst is augmented by said frequency. Applicant alleges that the transition metal salt complex disclosed by Tsutsui is an inactive, non-catalytic species and that the irradiated species are not physical catalysts. catalyst precursor that is inactive which is irradiated to become a strong reducing agent. Applicant concludes that Tsutsui is energizing a reactant because the Tsutsui does not disclose that the rate or velocity of the reaction is increased. Applicant reproduces the discussion of "traditional photochemistry" from the specification, which, in the lst sentence of the quoted passages, states that there are several drawbacks to using known photochemical techniques (such as the use of a broad band of frequencies), which will cause unwanted side reactions and poor quantum yield. Applicant reasserts that Tsutsui teaches traditional photochemistry and recites other work by Tsutsui and Schrauzer to allegedly demonstrate that the transition metal (V) reacts with an alcohol to form a transition state metal alcoholate that becomes active only after irradiation.

Responding to Applicant's classification of the terminology employed by Tsutsui and Applicant's argument that Tsutsui does not teach a catalyst, as defined in the specification, Applicant's definition of a catalyst, as provided by the specification, provides well known aspects of catalytic function (e.g., increases reaction rate, not used, etc.). However, neither the specification, nor the claims, address the important distinction of <u>when</u> something that is called a "catalyst"

actually functions as a catalyst. For example, palladium is a common catalyst for hydrogenation reactions. However, is palladium a catalyst if it is added to an enzymatic reaction in which it is not required? The point is that a catalyst is dependent on its environment. In order to function as a catalyst, said catalyst must be in the presence, under suitable conditions, of the components with which it reacts. Neither independent claims 1 nor 13 specify the components or the conditions of the chemical reaction system. Therefore, the rejected claims include an embodiment that Applicant terms as "traditional photochemistry" because the recitation of a "catalyst" fails to indicate that the catalyst is actually functioning as a catalyst in the claimed reaction. That is, the claims make no indication that there is a difference between an inert or unactivated catalyst and one that is actively decreasing the transition state energy of the reaction.

Hence, Applicant's assertion that the metal alcoholate complexes are not catalysts according to the specification fails to refute the disclosure by Tsutsui because the claims do not specify when a specie becomes a catalyst (e.g., when the catalyst is in the proper environment with the appropriate reactants). Tsutsui teaches that the irradiated metal alcoholate complexes effect the conversion of molecular nitrogen, hydrazines, etc. to their reduced counterparts, e.g., ammonia, etc. Without the use of a catalyst, these reactions have a very high energy of activation. Tsutsui teaches that nitrogen fixation occurs catalytically in plants through enzymatic reactions (col. 2, lines 38-40). Thus, the conversion of molecular nitrogen to ammonia occurs at a very slow rate in the absence of a catalyst. The irradiated metal complexes, taught by Tsutsui, function as catalysts because they sufficiently decrease the activation energy such that molecular nitrogen can be reduced. Hence, the rate of the reaction changes from negligible to measurable. Furthermore, active catalyst is regenerated (e.g., claim 7). Therefore, Tsutsui's disclosure that the metal complex

is activated by light of an optimized wavelength, based on the absorption spectrum, meets the claim limitations because claims 1 and 13 fail to specify the components of the chemical reaction system and do not provide a limitation that excludes Tsutsui as prior art based on when the catalyst actually acts as a catalyst.

Responding to Applicant's argument that the reactions taught by Tsutsui are nothing more than traditional photochemistry, as noted supra, the claims embrace an embodiment that includes the activation of an inactive catalyst because the claims do not recite a limitation that differentiate between an inert or unactivated catalyst and one that is actively decreasing the transition state energy of the reaction.

Regarding the limitation of "augmenting," which is interpreted to mean increasing, Tsutsui meets the limitation of "augmenting" because activating a precursor catalyst metal complex to an active catalytic state increases the activity from nothing to some value effective to catalyze the disclosed reductions.

Regarding Applicant's citation of other work by Tsutsui and Schrauzer, the disclosure by the Tsutsui patent meets the current claim limitations.

Claim Rejections - 35 USC § 103

The rejection of claims 1, 2, 4, 9 and 13 under 35 U.S.C. 102(e) as being clearly anticipated by Mohr (US 6,217,712) is reframed as an obviousness rejection, see below. Applicant's arguments are address insofar as they address the disclosure of the parent application 08/760,342, of which US 6,217,712 is a CIP.

Claims 1-4 and 7-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lichtin et al. (US 4,861,484) in view of Tsutsui et al. (US 4,287,036; "Tsutsui").

Applicant argues that Lichtin is "most likely 'typical' photochemistry radiation used in the art." Applicant argues that Lichtin uses traditional photochemistry to irradiate an inactive catalyst precursor to produce an active catalyst and that Tsutsui does not overcome the deficiencies of Lichtin.

Responding to Applicant's argument that Lichtin teaches "traditional photochemistry" (e.g., irradiation an inactive catalyst precursor to produce an active catalyst) whereas Applicant's invention is directed to "a physical catalyst in a chemical reaction system can be augmented by the exposure of the reaction system to at least one determined frequency" (see 2nd paragraph of p. 5 of Applicant's response), these features are not precisely stated in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's definition of a catalyst, as provided by the specification, provides well known aspects of catalytic function (e.g., increases reaction rate, not used, etc.). However, neither the specification, nor the claims, address the important distinction of <u>when</u> something that is called a "catalyst" actually functions as a catalyst. For example, palladium is a common catalyst for hydrogenation reactions. However, is palladium a catalyst if it is added to an enzymatic reaction in which it is not required? The point is that a catalyst is dependent on its environment. In order to function as a catalyst, said catalyst must be in the presence, under suitable conditions, of the components with which it reacts. Neither independent claims 1 nor 13 specify the components or the conditions of the chemical reaction system.

Hence, the rejected claims are interpreted to include "traditional photochemistry" because the recitation of a "catalyst" fails to indicate that the catalyst is actually functioning as a catalyst in the claimed reaction. That is, the claims make no indication that there is a difference between an inert or unactivated catalyst and one that is actively decreasing the transition state energy of the reaction. Therefore, Applicant's assertion that Lichtin only discloses "traditional photochemistry" is not persuasive because the indicated claims read on an embodiment wherein an inactive catalyst precursor is irradiated to produce an active catalyst.

Regarding the limitation of "augmenting," which is interpreted to mean increasing, Lichtin meets the limitation of "augmenting" because activating an inactive catalyst to an active catalytic state increases the activity from nothing to some value effective to catalyze the disclosed reductions.

Claims 1, 3, 4, 7, 8 and 10-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt, Jr. (US 4,115,280; "Pratt") in view of Vladimirov (1988, abstract only) and Cronheim (1937; abstract only).

Applicant asserts that the Examiner has used hindsight reasoning to combine the references based on Applicant's teachings. Applicant argues that Pratt focuses on the vibrational and rotational frequencies of various species that are not associated with visible light. Applicant argues that Cronheim focuses on visible light and discloses process that are "likely traditional photochemistry." Applicant asserts that Vladimirov utilizes laser light to irradiate an inactive SOD and the disclosed frequency is the absorption maximum of the active enzyme. Applicant concludes that the irradiation of an inactive component in a reaction system does not correspond to the

claimed invention wherein the reaction system is exposed to, for example, at least one frequency that is characteristic of the catalyst in the reaction system. Applicant emphasizes that Vladimirov the irradiation of an inactive enzyme to produce a catalyst. Applicant submits that Cronheim serves as a general discussion for determining specific frequencies of a substance but does not cure the alleged deficiencies of Pratt and Vladimirov.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). All of the references are directed to using a portion of the EM spectrum to effect a change in an enzyme or macromolecule. Clearly, Pratt teaches that the frequency and the amplitude of the *laser output radiation is controlled to* ***selectively affect*** *the macromolecular catalyst* (col. 10, lines 20-35). Pratt did not specifically teach that a spectrum of the enzyme was obtained to determine the optimum wavelength(s) or frequency(ies) that comprise the spectral pattern that is duplicated to augment the catalyst. However, by simple deduction, the frequency to control the laser output to selectively affect the catalyst must come from something provides such information. The supporting references show that it was known in the art that changes in absorption frequencies with the activity and structure of the enzyme are determined by spectral patterns of enzymes. Therefore, all of the references are related to influencing the activity/structure of a macromolecule by using a specific frequency of EM radiation to effect the desired change. Vladimirov and Cronheim

demonstrate specifically how one determines the specific frequency from the spectral pattern of the macromolecule. The ordinary artisan would have known that this method could be used for any wavelength of light depending on the desired effect. Therefore, the reasoning to combine there references is not from hindsight.

Responding to Applicant's argument all of the references are directed to "traditional photochemistry" (e.g., irradiation an inactive catalyst precursor to produce an active catalyst) whereas Applicant's invention is directed to "a physical catalyst in a chemical reaction system can be augmented by the exposure of the reaction system to at least one determined frequency" (see 2nd paragraph of p. 5 of Applicant's response), these features are not precisely stated in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's definition of a catalyst, as provided by the specification, provides well known aspects of catalytic function (e.g., increases reaction rate, not used, etc.). However, neither the specification, nor the claims, address the important distinction of when something that is called a "catalyst" actually functions as a catalyst. For example, palladium is a common catalyst for hydrogenation reactions. However, is palladium a catalyst if it is added to an enzymatic reaction in which it is not required? Is glucose oxidase that is immobilized on an electrode but not actively oxidizing any substrate a catalyst by Applicant's definition? The point is that a catalyst is dependence on its environment. In order to function as a catalyst, said catalyst must be in the presence, under suitable conditions, of the components with which it reacts. Neither independent claims 1 nor 13 specify the components or the conditions of the chemical reaction system.

Hence, the rejected claims are interpreted to include "traditional photochemistry" because the recitation of a "catalyst" fails to indicate that the catalyst is actually functioning as a catalyst in the claimed reaction. That is, the claims make no indication that there is a difference between an inert or unactivated catalyst and one that is actively decreasing the transition state energy of the reaction. Therefore, Applicant's assertion that the references only disclose "traditional photochemistry" is not persuasive because the indicated claims read on an embodiment wherein an inactive catalyst precursor is irradiated to produce an active catalyst.

Regarding the limitation of "augmenting," which is interpreted to mean increasing, the references meet the limitation of "augmenting" because activating an inactive catalyst to an active catalytic state increases the activity from nothing to some value effective to catalyze the disclosed reductions.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 11 is drawn to a method for augmenting a physical catalyst in a chemical reaction system, by the steps of a)-c) of claim 1 wherein the physical catalyst is introduced into the chemical reaction system subsequent to exposing said chemical reaction system to the duplicated frequency. This claim is interpreted to mean that there is no further irradiation of the combination of the physical catalyst and the chemical reaction system. The specification fails to enable this claim because there is no disclosure as to how the irradiated chemical reaction system retains and then transfers energy to the physical catalyst such that the physical catalyst is augmented to carry out the intended reaction. The elements in the chemical reaction system receive energy at a frequency that is based on the spectra of the catalyst. Said elements may absorb this energy, but the specification does not teach the skilled artisan how to ensure that said elements retain the energy and then transfer it to an added catalyst before said elements return to the ground state.

Claim 15 is drawn to augmenting at least one physical catalyst with at least one frequency which "copies at least one mechanism of action of said physical catalyst". The specification fails to enable this claim because there is no disclosure that teaches the skilled artisan how light (energy) can "copy" the mechanism of action (a physical act) of a catalyst. Quanta of light can alter the energy level of a catalyst but it is unclear how said quanta can perform a physical action. For example, enzymes provide a sequestered environment that can physical alter the bonds of a substrate (e.g., introduce bond strain) such that the energy of activation for the reaction is lowered, thus allowing for catalysis. The skilled artisan cannot determine from the specification how to make energy "copy" a physical action.

Claims 1-6, 9, 10 and 12-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for augmenting a physical catalyst that catalyzes the conversion of a reactant to a product, by the steps of a)-c) of claim 1 wherein the determined frequency is at least a duplicated frequency of the EM spectral pattern or a harmonic frequency of the duplicated EM spectral pattern and the physical catalyst is present in the chemical reaction system at the time of exposure to said frequency, does not reasonably provide enablement for a method for augmenting a physical catalyst that catalyzes the conversion of a reactant to a product, by the steps of a)-c) of claim 1 wherein the determined frequency can also be at least one frequency which copies at least one mechanism of said at least physical catalyst (part iii of claim 13); or the chemical reaction system is irradiated prior to the addition of the physical catalyst (as in claim 11). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

The indicated claims include embodiments of claims 11 and 15 that are not enabled for the reasons explained *supra.*

Claims 13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 15 are rejected because the phrase "(iii) at least one frequency which copies at least one mechanism of action of said physical catalyst" is vague and indefinite. It is unclear how light (energy) can "copy" the mechanism of action (a physical act) of a catalyst. Quanta of light can

alter the energy level of a catalyst but it is unclear how said quanta can perform a physical action. For example, enzymes provide a sequestered environment that can physical alter the bonds of a substrate such that the energy of activation for the reaction is lowered, thus allowing for catalysis. It is unclear how energy could "copy" this type of physical action.

Claim Rejections - 35 USC § 102

Claims 1-4, 7-9 and 13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Borsub et al. (1984).

Borsub discloses the light-dependent acceleration of the rate at which PdCl2(η4-norbornadiene) (PD-NBD) catalyzes the valence isomerization of quadricyclene (Q) to norbornadiene (NBD). Borsub teaches that the electronic spectrum of PD-NBD in methylene chloride was determined and spectral assignments were made using the spectral analysis for PdCl2en. The spectrum is shown in Fig. 1. Borsub selected an irradiation wavelength of 313 nm . The isomerization of Q in the presence of the catalyst PD-NBD was carried out in methylene chloride in the presence and absence of light at 313 nm. Fig. 2 demonstrates that catalysis occurs in the absence of light and is greatly accelerated in the presence of light. The dark reaction occurs at about 1% conversion per hour (p. 4827, left column under "Photochemical studies"). This disclosure meets the limitations of claims 1 because the rate of a catalyzed reaction that occurs in the dark is enhanced when the catalyst, in the reaction system (as in instant claim 7), is subjected to a wavelength of light determined from the absorption spectrum, as in instant claims 3 and 8, of said catalyst. The catalyst comprises Pd, a metal, as in instant claims 2 and 9. The wavelength of 313 nm is in the UV range, as in instant claim 4.

Claims 1, 3-8 and 10-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Biscar et al. (1975).

Biscar discloses the activation of an enzymatic reaction by a frequency selected from a EMER-Raman-generated spectrum. Biscar teaches the determination of Electromagnetic Molecular Electronic Resonance (EMER) Raman spectrum of chymotrypsin (p. 129, right column through page 130; Figs 6-7). Biscar describes an experimental set-up for selective photon activation of chymotrypsin and demonstrated that the frequency that most stimulated the enzyme corresponds to the wavelength of the harmonic three of the fundamental frequency of the chain B measured by EMER-Raman spectroscopy (p. 133, top left paragraph). Biscar discloses that the method for photon activation of enzymes can be localized in a limited number of cells after the exact activating frequencies are determined for each enzyme by the EMER-Raman method (p. 133, right column, first full paragraph).

Claim Rejections - 35 USC § 103

Claims 1, 2, 3, 4, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohr (US 6,217,712, based on the parent application 08/760,342) in view of website of the National High Magnetic Field Laboratory (downloaded12/22/06)

Mohr discloses an NMR-based method and device for stimulating a catalyst during a chemical reaction wherein the catalyst is stimulated at a resonance frequency that stimulates the nuclear magnetic resonance of said catalyst (p. 1, last 2 paragraphs). Mohr states that "Therefore the simulated frequency can be selected from frequencies which simulate the nuclear resonance of common catalyst such as platinum, rhenium, iridium or ruthenium.

Although Mohr teaches the selection of NMR frequencies to stimulate the catalyst prior to stimulating the reaction, he does not specifically teach that the NMR frequencies are obtained from the spectrum of the selected catalyst.

The data down-loaded from the National High Magnetic Field Laboratory (NHML) discloses NMR frequencies for platinum in various magnetic fields. Such data must be taken from the NMR spectrum of the metal.

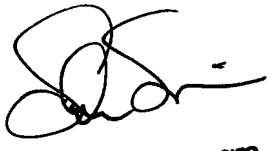
It would have been obvious to one or ordinary skill in the art at the time the invention was made to determine the NMR frequency to stimulate a metal catalyst such as platinum from an NMR spectrum of the catalyst or from spectral data derived therefrom. The ordinary artisan would have been motivated to do so because the metal catalyst absorbs energy only at certain frequencies. Thus, the ordinary artisan would have realized that he or she should select a frequency that simulated the NMR resonance of the catalyst. The ordinary artisan would have had a reasonable expectation that a frequency selected from those disclosed by NHML would stimulate the metal catalyst because said reported frequencies were obtained by observing platinum resonances in the disclose magnetic fields.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Hanley whose telephone number is 571-272-2508. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Susan Hanley
Patent Examiner
Art Unit 1651



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